Remarks

Applicant thanks the Examiner for the Written Office Action. With regard to the substantive portion of the Written Office Action, Claim 6 was rejected under 35 U.S.C. §112 as being indefinite and claims 1-5 and 7-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,819,399 issued to ONODA.

Claim rejections under 35 U.S.C. § 112

Applicant respectfully submits that claim 6 satisfies the definiteness requirement of 35 U.S.C. § 112, second paragraph. The standard for definiteness is whether the claims, "read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention." *Hybritech Inc. v Monoclonal Antibodies,* 231 U.S.P.Q. 81 (Fed. Cir. 1986). Applicant respectfully submits that the complete strut is still present, but it now has more struts attached to it. One skilled in the art would have no difficulty interpreting the scope of the claims and avoiding infringement, the very purpose of the second paragraph of §112.

In particular, claim 6 states "the architectural system of claim 4 further comprising a polygon structure coupled to the fourth complete strut, the polygon structure having N sides each occupied by a respective complete strut, the third axis containing one of the N sides, the fourth axis containing another of the N sides wherein the fourth complete strut forms a portion of the polygon structure." Accordingly, claim 6 does not convert the extension into a polygon, a polygon is coupled thereto. Therefore, applicant respectfully requests that the rejection for indefiniteness under 35 U.S.C. § 112 be removed.

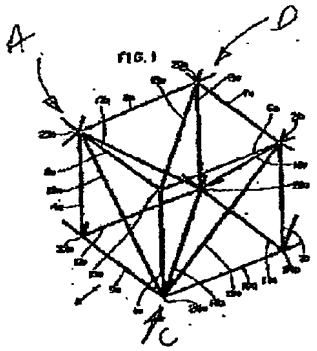
According to the detailed description of the patent application, "a 'complete' strut is one that substantially surrounds its corresponding axis for the entire length between the nodes

engaged by the strut. Such a strut will distribute an axial tension or compression on opposing sides of the axis." A polygon is defined as a closed plane figure having three or more sides (examples include triangles, rectangles, and octagons). Adding extensions to a complete strut forms a polygon. The complete strut is still present and includes additional struts, forming a polygon together with the complete strut.

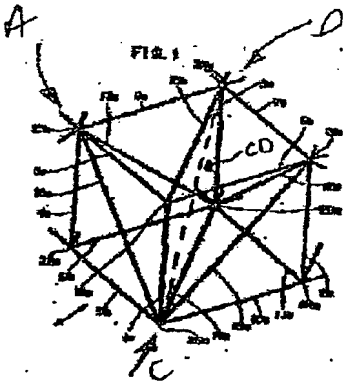
Claim rejections under 35 U.S.C. § 103

Applicant respectfully submits that the present claims are patentable and nonobvious in view of ONODA. In particular, the ONODA reference does not include all of the limitations of the present claims. Further, some of the limitations are discounted by the Examiner as a design choice but instead they provide unexpected functional results.

Specifically, independent claim 1 includes "a triangular base comprising: first, second and third complete struts substantially aligned along first, second and third axes (AB, BC, and AC) respectively, the axes all contained within a base plane, the first and third axes forming a first base angle CAB, the first and second axes forming a second base angle ABC, the second and third axes forming a third acute base angle BCA, more than one of the struts each comprising at least two rigid pieces able to move apart so as to produce a strut elongation." ONODA does not include a complete strut as defined in the present application. In particular, the complete strut is defined in paragraph 4 of the detailed description of the patent application as "one that substantially surrounds its corresponding axis for the entire length between the nodes engaged by the strut. Such a strut will distribute an axial tension or compression on opposing sides of the axis." There is no structure in ONODA that satisfies that definition. The Examiner has pointed to the figure below as including that structure.



In particular the Examiner has indicated that there is an axis (CD), as can be seen in the figure above, but there is no direct connection between vertices C and D. Accordingly, there can be no "'complete' strut that substantially surrounds its corresponding axis for the entire length between the nodes engaged by the strut" as the axis CD "bows further away from the axis under axial compression." For clarity, the axis CD is shown below. There is clearly no extension "that substantially surrounds its corresponding axis for the entire length between the nodes engaged by the strut."



ONODA's struts when they are folded or are unfolding are not "complete." When they are completely unfolded they can be considered "complete" but they cannot "produce strut elongation" anymore. To summarize, ONODA struts are either "complete" or can

"produce strut elongation" but ONODA never teaches both attributes simultaneously as claimed in our claim 1, hence ONODA doesn't anticipate claim 1.

Further, independent claim 1 requires "a first node A engaging the first and third complete struts, the first node A large enough to maintain the first base angle CAB, the first base angle CAB consisting of a first positive value about equal to (j×20.9° + k×31.7° + m×36° + n×37.4°), where j, k, m and n are each an integer less than three" and "a second node B engaging the first and second complete struts, the second node B large enough to maintain the second base angle ABC, the second base angle ABC consisting of a second positive value about equal to (q×20.9° + r×31.7° + s×36° + t×37.4°) , where q, r, s, and t are each an integer less than three." There is absolutely no reference to such limitation in ONODA. Instead the Examiner has indicated that this limitation is a mere design choice. As will be explained below, this is not the case. Accordingly, ONODA does not include this limitation, and our rejection under 103 does not include this important limitation.

Applicant respectfully submits that the independent claims provide unexpected results and are therefore patentable under 35 U.S.C. § 103 over ONODA.

Claimed angles are not a matter of design choice

The angles recited in Claim 1 are not a matter of design choice and are critical to achieve benefits of structural strength, connectivity and packing of the structures, and minimum inventory with maximum diversity.

The code column is a number that uniquely identifies the tetrahedra. For the convenience of the reader the lengths of the tetrahedra's edges are given in the next six columns followed by the tetrahedra's volume. Again, the lengths are expressed without unit and one skilled in the art would be able to multiply the lengths by a given factor to produce a

specific implementation. The last four columns represent the codes of the tetrahedron's four triangular faces. The first number refers to the unique shape of the triangle. The second number represents a scaling power of the Golden Ratio (square root of five plus one divided by two which is about equal to 1.618...) If the 2nd number is one then the scale factor is one, if it is 2 then the scale factor is the Golden Ratio, if it is three then the scale factor is Golden Ratio square, etc...

The triangles that constitute the faces of all the preceding tetrahedra are described in the following table:

Code	Legth 1	Legth 2	Legth 3	Angle 1	Angle 2	Angle 3
1	1.000	1.000	1.414	90.0	45.0	45.0
2	1.000	2.618	2.803	90.0	69.1	20.9
3	1.000	1.618	1.902	90.0	58.3	31.7
4	1.000	2.288	1.732	45.0	110.9	24.1
5	1.000	1.414	1.732	90.0	54.7	35.3
6	1.000	3.702	3.078	45.0	121.7	13.3
7	1.000	2.288	3.078	135.0	31.7	13.3
8	1.000	1.000	1.000	60.0	60.0	60.0
9	1.000	1.618	1.414	60.0	82.2	37.8
10	1.000	2.618	2.288	60.0	97.8	22.2
11	1.000	1.618	1.000	36.0	108.0	36.0
12	1.000	1.618	1.618	72.0	72.0	36.0
13	1.000	1.618	2.288	120.0	37.8	22.2
15	1.000	2.288	2.288	77.4	77.4	25.2
16	1.000	3.702	3.702	82.2	82.2	15.5
17	1.000	1.414	1.414	69.3	69.3	41.4
18	1.000	2.288	1.414	22.2	142.2	15.5
19	1.000	1.539	0.866	31.7	110.9	37.4
20	1.000	0.951	0.951	58.3	58.3	63.4
21	1.000	0.866	0.866	54.7	54.7	70.5
22	1.000	1.401	1.401	69.1	69.1	41.8
23	1.618	1.414	2.803	135.0	20.9	24.1
24	2.618	1.414	1.902	45.0	31.7	103.3
25	2.618	2.288	1.902	45.0	58.3	76.7
28	1.618	1.414	1.414	55.1	55.1	69.8
29	1.618	2.288	1.414	37.8	97.8	44.5
30	1.618	0.951	0.951	31.7	31.7	116.6
31	1.618	1.539	0.866	31.7	69.1	79.2
32	1.618	0.951	2.267	121.7	20.9	37.4
33	1.618	0.866	0.866	20.9	20.9	138.2
34	2.618	1.414	1.414	22.2	22.2	135.5
35	2.618	0.951	2.267	58.3	20.9	100.8

44	1.414	0.866	0.866	35.3	35.3	109.5
48	2.288	1.539	0.866	13.3	24.1	142.6
49	2.288	0.951	2.267	76.7	24.1	79.2
52	3.702	3.441	0.866	13.3	65.9	100.8
53	3.702	4.029	0.951	13.3	103.3	63.4
54	0.951	1.539	1.401	63.4	79.2	37.4
55	0.951	1.401	0.866	37.4	100.8	41.8

The code column is a number that uniquely identifies the base triangles. The lengths of the triangles edges and angles are given. The lengths are expressed without unit and it would be easy to multiply the lengths by a given factor to produce a specific implementation. Please note that a specific implementation may require some triangular faces to be scaled by the Golden Ratio.

The list of unique lengths for the edges of all these triangles and tetrahedra is:

0.866
0.951
1.000
1.401
1.414
1.539
1.618
1.732
1.902
2.267
2.288
2.490
2.618
2.803
3.078
3.441
3.702
4.029
4.236
4.980
5.991

To summarize, this clearly demonstrates that these angles are not a design choice and are critical in achieving the following benefits in a unique way:

Superior Structural Strength

The rigidity and structural strength of a structure depends mainly on its ability to triangulate. The structure that achieves the most triangulation is the tetrahedron. We have demonstrated that with these angles and the triangular base formulated with claim 1 we are able to generate at least 163 different tetrahedra and thus be able to generate at least 163 octet (OCTahedra-TETrahedra) plane trusses.

Superior connectivity and packing

Because so many tetrahedra share faces that are similar in other tetrahedra (only 39 triangular face shapes are necessary to compose at least 652 faces in 163 tetrahedra) those tetrahedra are able to connect and interface with each other in an efficient way to assemble and pack modular structures together.

Minimum inventory with maximum diversity

The angles and triangular base recited in claim 1 have allowed the discovery of at least 163 tetrahedra. The 652 faces of these tetrahedra (163x4) can be built from an inventory of only 39 different triangular panels, a better than 16 to 1 ratio. Similarly the 978 edges of these tetrahedra (163*6) can be built from an inventory of only 21 different strut lengths, a better than 46 to 1 ratio.

This minimum inventory leads to economies of scale in production, supply chain management and assembly while allowing maximum diversity in the structural shapes and designs.

To demonstrate this we will start with some of the possible base triangles as defined by the formula of claim 1:

Code	j	k	m	n	CAB	q	r	s	t	ABC	BCA	Length 1	Length 2	Length 3
02	1	0	0	0	20.9	0	1	0	1	69.1	90.0	1.000	2.618	2.803

03	0	1	0	0	31.7	1	0	0	1	58.3	90.0	1.000	1.618	1.902
11	0	0	3	0	108.0	0	0	1	0	36.0	36.0	1.000	1.618	1.000
12	0	0	1	0	36.0	0	0	2	0	72.0	72.0	1.000	1.618	1.618
19	0	1	0	0	31.7	2	1	0	1	110.9	37.4	1.000	1.539	0.866
20	1	0	0	1	58.3	1	0	0	1	58.3	63.4	1.000	0.951	0.951
22	0	1	0	1	69.1	0	1	0	1	69.1	41.8	1.000	1.401	1.401
30	0	1	0	0	31.7	0	1	0	0	31.7	116.6	1.618	0.951	0.951
31	0	1	0	0	31.7	0	1	0	1	69.1	79.2	1.618	1.539	0.866
32	1	2	0	1	121.7	1	0	0	0	20.9	37.4	1.618	0.951	2.267
33	1	0	0	0	20.9	1	0	0	0	20.9	138.2	1.618	0.866	0.866
35	1	0	0	1	58.3	1	0	0	0	20.9	100.8	2.618	0.951	2.267
54	0	2	0	0	63.4	2	0	0	1	79.2	37.4	0.951	1.539	1.401
55	0	0	0	1	37.4	0	2	0	1	100.8	41.8	0.951	1.401	0.866

The code column is a number that uniquely identifies the base triangles. The coefficients j, k, m, n and q, r, s, t are given to exemplify the computation of the angles CAB and ABC. For the convenience of the reader the third angle BCA as well as the length of the triangles sides are given. The lengths are expressed without unit and one skilled in the art would be able to multiply the lengths by a given factor to produce a specific implementation. Please note also that one length is equal to the length of the corresponding strut plus the diameter of one node, i. e. they go from node center to node center.

Here is a list of some of the tetrahedra that can be built with these base triangles:

Code	L1	L2	L3	L4	L5	L6	Vol	Face 1	Face 2	Face 3	Face 4
1	1.000	1.000	1.000	1.618	1.902	1.618	0.218	8_1	3_1	12_1	3_1
2	1.000	1.000	1.000	1.618	1.000	1.000	0.083	8_1	11_1	11_1	8_1
3	1.000	1.000	1.000	1.618	1.618	1.000	0.135	8_1	12_1	11_1	11_1
4	1.000	1.000	1.000	1.000	1.414	1.618	0.135	8_1	1_1	11_1	9_1
5	1.000	1.000	1.000	1.618	1.618	1.618	0.218	8_1	12_1	12_1	12_1
6	1.000	1.000	1.000	1.618	2.288	1.618	0.135	8_1	13_1	12_1	13_1
7	1.000	1.000	1.000	1.539	0.866	0.866	0.042	8_1	19_1	19_1	21_1
8	1.000	1.000	1.000	0.951	0.951	0.951	0.109	8_1	20_1	20_1	20_1
9	1.000	0.951	0.951	2.618	2.288	2.267	0.286	20_1	10_1	35_1	49_1
10	1.000	0.951	0.951	1.618	1.000	0.951	0.067	20_1	11_1	30_1	20_1
11	1.000	0.951	0.951	1.618	1.618	0.951	0.109	20_1	12_1	30_1	30_1
12	1.000	0.951	0.951	1.618	1.618	2.267	0.109	20_1	12_1	32_1	32_1
13	1.000	0.951	0.951	1.618	2.288	2.267	0.177	20_1	13_1	32_1	49_1
14	1.000	0.951	0.951	3.702	3.702	4.029	0.462	20_1	16_1	53_1	53_1
15	1.000	0.951	0.951	1.539	0.866	1.401	0.109	20_1	19_1	54_1	55_1
16	1.000	0.951	0.951	1.401	1.401	1.539	0.177	20_1	22_1	54_1	54_1
17	1.000	0.951	0.951	0.866	0.866	1.401	0.067	20_1	21_1	55_1	55_1

18	1.618	1.414	1.414	2.618	1.618	1.414	0.135	28_1	11_2	34_1	28_1
19	1.618	1.414	1.414	2.618	2.618	1.414	0.218	28_1	12_2	34_1	34_1
20	1.618	1.414	1.414	1.000	1.000	1.618	0.135	28_1	11_1	9_1	9_1
21	1.618	1.414	1.414	1.618	1.000	1.000	0.218	28_1	12_1	9_1	1_1
22	1.618	1.414	1.414	2.618	2.618	1.902	0.571	28_1	12_2	24_1	24_1
23	1.618	1.414	1.414	1.000	1.000	1.732	0.052	28_1	11_1	5_1	5_1
24	1.618	1.414	1.414	0.866	0.866	0.866	0.026	28_1	33_1	44_1	44_1
25	1.000	0.866	0.866	1.618	1.414	0.866	0.067	21_1	9_1	33_1	44_1
26	1.000	0.866	0.866	1.618	1.000	0.866	0.026	21_1	11_1	33_1	21_1
27	1.000	0.866	0.866	1.618	1.618	0.866	0.042	21_1	12_1	33_1	33_1
28	1.000	0.866	0.866	1.618	1.000	1.539	0.109	21_1	11_1	31_1	19_1
29	1.000	0.866	0.866	1.618	2.288	1.539	0.067	21_1	13_1	31_1	48_1
30	1.000	0.866	0.866	1.618	1.618	1.539	0.177	21_1	12_1	31_1	31_1
31	1.000	0.866	0.866	1.539	0.866	1.000	0.067	21_1	19_1	19_1	21_1
32	1.000	0.866	0.866	1.539	0.866	1.618	0.067	21_1	19_1	31_1	33_1
33	1.000	0.866	0.866	1.401	1.401	0.951	0.109	21_1	22_1	55_1	55_1
34	1.000	1.618	1.000	1.000	1.414	1.618	0.135	11_1	1_1	12_1	9_1
35	1.000	1.618	1.000	2.618	2.803	2.618	0.353	11_1	2_1	12_2	2_1
36	1.000	1.618	1.000	1.000	1.414	1.414	0.083	11_1	1_1	9_1	17_1
37	1.000	1.618	1.000	1.618	1.902	1.618	0.135	11_1	3_1	8_2	3_1
38	1.000	1.618	1.000	2.618	2.288	1.618	0.218	11_1	10_1	11_2	13_1
39	1.000	1.618	1.000	1.000	1.414	2.288	0.083	11_1	1_1	13_1	18_1
40	1.000	1.618	1.000	1.618	1.414	1.618	0.218	11_1	9_1	8_2	9_1
41	1.000	1.618	1.000	2.618	2.288	2.288	0.353	11_1	10_1	9_2	15_1
42	1.000	1.618	1.000	1.618	1.000	1.618	0.135	11_1	11_1	8_2	11_1
43	1.000	1.618	1.000	1.618	1.618	2.288	0.218	11_1	12_1	1_2	13_1
44	1.000	1.618	1.000	1.618	2.288	2.288	0.135	11_1	13_1	1_2	15_1
45	1.000	1.618	1.000	2.618	2.288	2.618	0.353	11_1	10_1	12_2	10_1
46	1.000	1.618	1.000	1.618	1.618	1.618	0.218	11_1	12_1	8_2	12_1
47	1.000	1.618	1.000	1.618	1.414	2.288	0.135	11_1	9_1	1_2	18_1
48	1.000	1.618	1.000	2.618	2.288	3.078	0.218	11_1	10_1	3_2	7_1
49	1.000	1.618	1.000	1.000	1.618	1.902	0.135	11_1	11_1	3_1	3_1
50	1.000	1.618	1.000	2.288	1.732	1.414	0.218	11_1	4_1	29_1	5_1
51	1.000	1.618	1.000	3.702	3.078	2.288	0.218	11_1	6_1	18_2	7_1
52	1.000	1.618	1.000	3.702	3.078	3.702	0.218	11_1	6_1	15_2	6_1
53	1.000	1.618	1.000	3.702	3.702	3.702	0.571	11_1	16_1	15_2	16_1
54	1.000	1.618	1.000	1.414	1.414	2.288	0.135	11_1	17_1	29_1	18_1
55	1.000	1.618	1.000	2.288	2.618	2.288	0.218	11_1	10_1	17_2	10_1
56	1.000	1.618	1.000	2.288	2.618	2.803	0.353	11_1	10_1	5_2	2_1
57	1.000	1.618	1.000	2.288	1.732	2.288	0.218	11_1	4_1	17_2	4_1
58	1.000	1.618	1.000	1.539	0.866	1.539	0.109	11_1	19_1	20_2	19_1
59	1.000	1.618	1.000	1.401	1.401	1.401	0.177	11_1	22_1	21_2	22_1
60	1.414	0.866	0.866	1.618	1.000	1.539	0.067	44_1	9_1	31_1	19_1
61	1.414	0.866	0.866	1.618	2.288	1.539	0.109	44_1	29_1	31_1	48_1
62	1.414	0.866	0.866	1.000	2.288	1.539	0.042	44_1	18_1	19_1	48_1
63	1.618	0.951	0.951	1.618	1.618	0.951	0.067	30_1	8_2	30_1	30_1
64	1.618	0.951	0.951	2.618	2.618	2.267	0.286	30_1	12_2	35_1	35_1
65	1.618	0.951	0.951	2.618	1.618	2.267	0.177	30_1	11_2	35_1	32_1
66	1.618	0.951	0.951	3.702	3.702	4.029	0.286	30_1	15_2	53_1	53_1
67	1.618	0.951	0.951	2.288	2.288	2.267	0.286	30_1	17_2	49_1	49_1

68	1.618	0.951	0.951	1.539	1.539	1.401	0.177	30_1	20_2	54_1	54_1
69	1.618	0.951	0.951	0.951	2.267	1.618	0.109	30_1	32_1	30_1	32_1
70	1.618	0.951	0.951	1.401	1.401	0.866	0.109	30_1	21_2	55_1	55_1
71	1.618	0.951	0.951	1.401	1.401	1.539	0.109	30_1	21_2	54_1	54_1
72	2.618	1.414	1.414	1.000	2.803	1.618	0.218	34_1	2_1	9_1	23_1
73	2.618	1.414	1.414	1.618	1.618	1.000	0.218	34_1	11_2	9_1	9_1
74	1.618	0.866	0.866	1.618	1.618	1.539	0.109	33_1	8_2	31_1	31_1
75	1.618	0.866	0.866	3.702	3.702	3.441	0.244	33_1	15_2	52_1	52_1
76	1.618	0.866	0.866	1.401	1.401	0.951	0.067	33_1	21_2	55_1	55_1
77	0.951	1.401	0.866	1.539	1.401	0.951	0.109	55_1	54_1	54_1	55_1
78	0.951	1.401	0.866	2.267	1.618	1.539	0.177	55_1	32_1	55_2	31_1
79	0.951	1.401	0.866	1.401	1.539	2.288	0.109	55_1	54_1	44_2	48_1
80	0.951	1.401	0.866	1.401	1.539	1.618	0.177	55_1	54_1	21_2	31_1
81	1.618	2.288	1.414	1.618	1.000	1.000	0.218	29_1	12_1	13_1	1_1
82	1.618	2.288	1.414	2.618	1.618	1.000	0.353	29_1	11_2	10_1	9_1
83	1.618	2.288	1.414	2.618	2.618	1.902	0.571	29_1	12_2	25_1	24_1
84	1.618	2.288	1.414	1.618	1.000	1.618	0.353	29_1	12_1	1_2	9_1
85	1.618	2.288	1.414	1.618	1.000	2.288	0.218	29_1	12_1	17_2	18_1
86	1.000	1.539	0.866	2.618	2.288	1.539	0.109	19_1	10_1	30_2	48_1
87	1.000	1.539	0.866	1.618	1.618	1.539	0.177	19_1	12_1	20_2	31_1
88	1.000	1.401	1.401	2.618	2.288	1.401	0.177	22_1	10_1	33_2	44_2
89	1.000	1.401	1.401	1.618	1.618	1.401	0.286	22_1	12_1	21_2	21_2
90	1.000	1.401	1.401	1.618	2.288	1.401	0.109	22_1	13_1	21_2	44_2
91	1.000	1.401	1.401	1.618	1.618	2.490	0.286	22_1	12_1	19_2	19_2
92	1.000	1.401	1.401	2.288	2.288	1.401	0.286	22_1	15_1	44_2	44_2
93	1.000	1.401	1.401	3.702	3.702	2.490	0.286	22_1	16_1	48_2	48_2
94	1.000	1.414	1.414	1.618	1.618	2.803	0.135	17_1	12_1	23_1	23_1
95	1.000	1.618	1.414	2.618	2.803	1.618	0.218	9_1	2_1	11_2	23_1
96	1.000	1.618	1.414	1.618	1.902	2.618	0.353	9_1	3_1	11_2	24_1
97	1.000	2.288	1.414	1.618	1.902	2.618	0.218	18_1	3_1	9_2	24_1
98	1.000	2.288	1.414	1.618	1.618	2.803	0.135	18_1	12_1	5_2	23_1
99	0.951	1.539	1.401	2.618	2.267	1.539	0.286	54_1	35_1	30_2	55_2
100	0.951	1.539	1.401	1.539	1.401	1.618	0.286	54_1	54_1	20_2	21_2
101	0.951	1.539	1.401	1.539	1.401	2.618	0.177	54_1	54_1	30_2	33_2
102	0.951	1.539	1.401	2.267	1.618	1.401	0.177	54_1	32_1	55_2	21_2
103	0.951	1.539	1.401	2.267	1.618	2.490	0.286	54_1	32_1	54_2	19_2
104	0.951	1.539	1.401	1.401	1.539	0.951	0.177	54_1	54_1	54_1	54_1
105	0.951	1.539	1.401	2.267	2.288	1.401	0.286	54_1	49_1	55_2	44_2
106	0.951	1.539	1.401	1.401	1.539	2.267	0.286	54_1	54_1	55_2	55_2
107	0.951	1.539	1.401	2.267	2.618	2.490	0.462	54_1	35_1	54_2	31_2
108	1.000	1.618	1.618	2.618	2.803	2.288	0.571	12_1	2_1	9_2	5_2
109	1.000	1.618	1.618	1.618	1.902	1.000	0.218	12_1	3_1	12_1	3_1
110	1.000	1.618	1.618	2.618	2.288	1.618	0.353	12_1	10_1	11_2	1_2
111	1.000	1.618	1.618	2.618	2.288	2.618	0.571	12_1	10_1	12_2	9_2
112	1.000	1.618	1.618	1.618	1.618	2.618	0.353	12_1	12_1	11_2	11_2
113	1.000	1.618	1.618	1.618	2.288	1.618	0.218	12_1	13_1	8_2	1_2
114	1.000	1.618	1.618	1.618	2.288	2.288	0.353	12_1	13_1	1_2	17_2
115	1.000	1.618	1.618	2.618	2.803	3.702	0.571	12_1	2_1	13_2	4_2
116	1.000	1.618	1.618	1.618	1.618	1.618	0.353	12_1	12_1	8_2	8_2
117	1.000	1.618	1.618	2.618	2.288	3.702	0.353	12_1	10_1	13_2	18_2

118	1.000	1.618	1.618	3.702	3.078	2.618	0.353	12_1	6_1	13_2	3_2
119	1.000	1.618	1.618	2.288	2.288	1.000	0.218	12_1	15_1	13_1	13_1
120	1.000	1.618	1.618	3.702	3.702	2.618	0.571	12_1	16_1	13_2	13_2
121	1.000	1.618	1.618	2.288	2.288	2.803	0.571	12_1	15_1	5_2	5_2
122	1.000	1.618	1.618	3.702	3.702	3.702	0.924	12_1	16_1	15_2	15_2
123	1.000	1.618	1.618	2.288	3.078	2.618	0.353	12_1	7_1	9_2	3_2
124	1.000	1.618	1.618	2.288	2.288	2.618	0.571	12_1	15_1	9_2	9_2
125	1.000	1.618	1.618	2.288	2.288	3.702	0.218	12_1	15_1	18_2	18_2
126	1.000	1.618	1.618	3.702	3.702	4.980	0.571	12_1	16_1	7_2	7_2
127	1.000	1.618	2.288	2.618	2.803	1.618	0.218	13_1	2_1	11_2	5_2
128	1.000	1.618	2.288	1.618	1.902	2.618	0.353	13_1	3_1	11_2	25_1
129	1.000	1.618	2.288	2.618	2.288	2.618	0.353	13_1	10_1	12_2	28_2
130	1.000	1.618	2.288	1.618	2.288	2.618	0.218	13_1	13_1	11_2	28_2
131	1.000	1.618	2.288	3.078	3.702	2.618	0.571	13_1	6_1	3_2	29_2
132	1.000	1.618	2.288	2.803	2.618	2.288	0.218	13_1	2_1	5_2	28_2
133	1.618	0.951	2.267	2.618	2.618	2.267	0.286	32_1	12_2	35_1	21_3
134	1.618	0.951	2.267	1.618	1.618	2.267	0.286	32_1	8_2	32_1	22_2
135	1.618	0.951	2.267	2.618	3.702	2.267	0.462	32_1	13_2	35_1	44_3
136	1.618	0.951	2.267	1.618	2.618	2.267	0.177	32_1	11_2	32_1	21_3
137	1.618	0.951	2.267	3.702	2.618	4.029	0.462	32_1	13_2	53_1	19_3
138	1.618	0.951	2.267	2.288	2.618	2.267	0.462	32_1	9_2	49_1	21_3
139	1.618	0.951	2.267	2.288	3.702	2.267	0.286	32_1	18_2	49_1	44_3
140	1.618	0.951	2.267	3.702	4.236	4.029	0.748	32_1	10_2	53_1	31_3
141	1.618	0.951	2.267	2.267	2.267	2.618	0.462	32_1	22_2	35_1	21_3
142	1.000	3.702	3.702	2.618	2.803	1.618	0.571	16_1	2_1	13_2	4_2
143	2.618	0.951	2.267	2.267	4.029	2.618	0.748	35_1	19_3	35_1	19_3
144	2.618	0.951	2.267	2.267	2.267	2.618	0.462	35_1	21_3	35_1	21_3
145	2.618	0.951	2.267	4.029	2.267	3.702	0.748	35_1	19_3	53_1	44_3
146	2.618	0.951	2.267	3.702	5.991	4.029	0.748	35_1	18_3	53_1	48_3
147	2.618	0.951	2.267	3.702	4.236	4.029	1.210	35_1	9_3	53_1	31_3
148	2.618	0.951	2.267	2.618	4.236	2.267	0.462	35_1	11_3	35_1	33_3
149	2.618	0.951	2.267	2.618	2.618	2.267	0.748	35_1	8_3	35_1	21_3
150	2.288	0.951	2.267	2.288	4.236	2.267	0.462	49_1	34_2	49_1	33_3
151	2.288	0.951	2.267	3.702	2.618	4.029	0.748	49_1	29_2	53_1	19_3
152	2.288	0.951	2.267	2.618	3.702	2.267	0.748	49_1	29_2	35_1	44_3
153	1.000	2.618	2.288	2.803	2.618	1.000	0.353	10_1	2_1	2_1	10_1
154	1.000	2.618	2.288	1.902	1.618	2.288	0.571	10_1	3_1	25_1	17_2
155	1.000	2.618	2.288	3.078	2.288	1.618	0.218	10_1	7_1	3_2	17_2
156	1.000	2.618	2.288	2.618	2.288	1.618	0.571	10_1	10_1	12_2	17_2
157	1.000	2.618	2.288	1.618	1.902	2.618	0.571	10_1	3_1	12_2	25_1
158	1.000	2.618	2.288	2.618	2.803	1.618	0.353	10_1	2_1	12_2	5_2
159	1.000	2.288	2.288	2.618	2.803	1.618	0.571	15_1	2_1	9_2	5_2
160	2.288	1.539	0.866	1.618	2.288	1.539	0.109	48_1	17_2	20_2	48_1
161	1.618	1.539	0.866	1.539	1.539	1.618	0.286	31_1	20_2	20_2	31_1
162	1.618	1.539	0.866	2.618	1.618	1.539	0.286	31_1	11_2	30_2	31_1
163	1.618	1.539	0.866	2.618	2.288	1.539	0.177	31_1	9_2	30_2	48_1

Conclusion

In summary, Applicant respectfully submits that the complete strut is still present, but it now has more struts attached to it. Therefore, claim 6 satisfies the definiteness requirement and the rejection under 35 U.S.C. § 112 should be removed.

Applicant respectfully submits that the present claims are patentable and nonobvious in view of ONODA. In particular, the ONODA reference does not include all of the limitations of the present claims. Therefore, Applicant respectfully submits that the independent claims provide unexpected results and are therefore patentable under 35 U.S.C. § 103 over ONODA.

For these reasons, it is believed that none of the prior art teaches the claimed invention. Furthermore, it is believed that the foregoing amendment has adequate support in the specification, and accordingly there should be no new matter. Applicant believes the pending claims have addressed each of the issues pointed out by the Examiner in the Office Action. In light of the foregoing amendment, the claims should be in a condition for allowance. Should the Examiner wish to discuss any of the proposed changes, Applicant again invites the Examiner to do so by telephone conference.

Respectfully Submitted,

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